

IN THE CLAIMS

Please amend the claims as follows:

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33. (Cancelled)

34. (New) A method of leach autoclave processing

including the steps, in a desired order, of:

flashing the autoclave and generating a flash underflow;

performing a solid-liquid separation on the flash underflow  
to produce a solids fraction and an aqueous fraction;

returning at least a portion of the solids fraction to the  
autoclave; and

returning a portion of the aqueous fraction to the  
autoclave.

35. (New) The method of claim 34, including returning  
some of the aqueous fraction to the autoclave in a discrete  
overflow stream.

36. (New) The method of claim 34, including returning all of the solids fraction to the autoclave.

37. (New) The method of claim 34, including returning some of the solids fraction directly to the autoclave.

38. (New) The method of claim 34, including returning some of the solids fraction to the autoclave indirectly through a desired process upstream of the autoclave, the desired process being selected from an autoclave feed tank, an autoclave feed surge tank, and an autoclave feed density adjust tank upstream of the autoclave feed tank.

39. (New) The method of claims 34, including controlling oxygen mass transfer in the autoclave by regulating viscosity using the returned solids fraction.

40. (New) The method of claim 34, including obtaining the flash underflow from a first compartment of a multiple compartment autoclave and controlling the reaction extent in the first compartment to be in excess of 40%,

41. (New) The method of claim 40, including controlling the reaction extent in the first compartment to be in the range

of 85 to 95%.

42. (New) The method of claim 34, including adjusting the level of the feed tank to ensure that any out of specification leach product does not pass out of the autoclave.

43. (New) The method of claim 34, wherein the solid-liquid separation is achieved using at least one of a thickener, a classifier and a filter.

44. (New) The method of claim 34, wherein the autoclave has multiple compartments and the method includes flashing selected subsequent compartments of the autoclave after the first compartment, the flash slurry obtained thereby being fed to a solid-liquid separation step to produce a solids fraction and an aqueous fraction.

45. (New) The method of claim 44, including feeding the flashed material from the selected subsequent compartment to a solid-liquid separation step to produce a solids fraction and an aqueous fraction, at least a portion of the aqueous fraction being fed forwards in the process and the solids fraction being fed to the autoclave for further processing at desired conditions relative to the conditions prevailing in the initial part of the

autoclave.

46. (New) The method of claim 45, including using the autoclave to conduct at least two similar leaching processes within the same pressure envelope with only the compartment dividing walls keeping the processes separate.

47. (New) The method of claim 45, including returning the aqueous fraction to the autoclave for the removal of impurities, the aqueous fraction being fed to a desired compartment of the autoclave.

48. (New) The method of claim 45, including flashing the slurry of an intermediate compartment to remove energy and returning the flashed slurry to the same or subsequent compartment of the autoclave

49. (New) The method of claim 34, including directing the flash from the autoclave to a flash tank; directing the flash underflow from the flash tank into a thickener to produce a solids fraction and an aqueous fraction; and feeding the solids fraction to the autoclave for reprocessing.

50. (New) The method of claim 34, including directing

the flash from the autoclave into the feed tank, feeding the feed tank underflow to a thickener to produce a solids fraction and an aqueous fraction; and feeding the solids fraction to the autoclave for reprocessing.

51. (New) The method of claim 50, including feeding the solids fraction to one of the feed tank and a suitable tank upstream of the feed tank from where the solids fraction can be fed with other materials to the autoclave.

52. (New) A leach autoclave processing plant comprising: an autoclave feed tank, an autoclave; means to flash the autoclave into a suitable tank in which a feed underflow can be generated; separation means to perform a solid-liquid separation on the feed underflow to produce a solids fraction and an aqueous fraction; and means to return at least the solids fraction to the autoclave.

53. (New) The plant of claim 52, wherein the solids fraction obtained from the separation means is fed to the autoclave via the autoclave feed tank.

54. (New) The plant of claim 52, wherein the suitable tank into which the autoclave flash is directed is a flash tank.

55. (New) The plant of claim 52, wherein the suitable tank into which the autoclave flash is directed is the feed tank.

CONTINUED NEXT PAGE